CLAIMS

We claim:

1. A field effect transistor integrated on a semiconductor substrate having an active area, the field effect transistor comprising:

a source region and a drain region formed in the semiconductor substrate;

a channel region interposed between said source and drain regions having a predefined nominal width in a first direction that is perpendicular to a second direction that extends through the source, drain, and channel regions, the channel region having an effective width defined by a variable doping profile in the first direction.

2. The field effect transistor according to claim 1, wherein the variable doping profile is one of a region implanted adjacent to the transistor.

3. The field effect transistor according to claim 2, wherein the effective width is a function of a distance of a region implanted in the active area.

4. The field effect transistor according to claim 1, wherein the doping profile has a minimum of concentration at a center of the channel region.

5. The field effect transistor according to claim 1, wherein the doping profile increases with continuity from a center of the channel region to an edge of the active area.

6. The field effect transistor of claim 1 further comprising a second field effect transistor coupled in parallel to the field effect transistor, the second field effect transistor having a second effective width.

7. The field effect transistor of claim 6 wherein the second effective width of the second field effect transistor is smaller than the effective width of the field effect transistor.

8. The field effect transistor of claim 6 wherein the second effective width of the second field effect transistor is the same as the effective width of the field effect transistor.

9. A field effect transistor comprising:

an active area formed in a semiconductor substrate;

a source region and a drain region formed in the active area; and

a channel region interposed between said source and drain regions and having a first nominal width in a first direction that is perpendicular to a second direction that extends through the source, drain, and channel regions; the channel region having a variable doping profile in the semiconductor substrate extending in the first direction from no additional dopant in a center of the channel region to a concentrated amount of dopant at edges of the channel region, wherein an effective channel width of the channel region is relative to an amount and concentration of dopant in the channel region.

10. The field effect transistor of claim 9, wherein the variable doping profile is one of a region implanted adjacent to the transistor.

11. The field effect transistor of claim 10, wherein the effective channel width is a function of a distance of a region implanted by the active area.

12. The field effect transistor of claim 9, wherein the doping profile decreases with continuity from the edge of the active area to the center of the channel region.